

REMARKS

Claims 1 and 3-10 are currently pending in the Application. Claims 1, 4, and 8 are independent. Claim 8 has been amended. Reconsideration of this Application, as amended, is respectfully requested.

Reasons for Entry of Amendments

At the outset, it is respectfully requested that this Amendment be entered into the Official File in view of the fact that the amendments to the claims automatically place the application in condition for allowance.

In the alternative, if the Examiner does not agree that this application is in condition for allowance, it is respectfully requested that this Amendment be entered for the purpose of appeal. This Amendment reduces the issues on appeal by amending independent claim 8 to better reflect the subject matter claimed, and by clarifying the distinction between Applicant's claimed radius R and the radius R of the prior art of record. This Amendment was not presented at an earlier date in view of the fact that Applicant did not fully appreciate the Examiner's position until the Final Office Action was reviewed.

Rejection Under 35 U.S.C. § 102

Claims 1 and 3-10 stand rejected under 35 U.S.C. 102(b) over Takayanagi. This rejection is respectfully traversed.

Claims 1 and 4

The Applicant has disclosed that the supporting portions of the main frames of the prior art have a greater radius of curvature at peripheral (end) portions than a radius of curvature at the center of the frame (before the frame is compressed).

The Examiner states that Figs. 1A and 1C of Takayanagi teach a constant radius R along the main frames. The Applicant agrees that the radius R of the columnar portion (upper versus lower surface) of the main frames is constant. But, that is, the lower surfaces of the main frames and surfaces 45a/46a are spaced at a constant distance from top to bottom. Takayanagi refers to this distance as a columnar wall surface with a "radius of R". This "R" has nothing to do with a radius of curvature of the supporting surfaces of the main frames. Even more particularly (see Fig. 2A of Takayanagi) R is not a radius of curvature obtained by connecting a center and both ends of each one of said portions for supporting, as recited in Applicant's claims.

In contrast to the constant radius of the columnar wall of Takayanagi, the radius of curvature of the supporting surfaces of the main frame (before compression) in Takayanagi is not constant (as shown in Fig. 3A). Applicant notes that Takayanagi's Fig. 3A also corresponds to the text portion of Takayanagi cited by the Examiner (Col.3, lines 16-25). In fact, Fig. 3A is

presented by Takayanagi to show the true radius of curvature of supporting surfaces. In other words, the purpose of Takayanagi's Fig. 2A is to show a constant radius R between a top and bottom surface, and the purpose of Takayanagi's Fig. 3A is to show a radius of curvature of a supporting surface of the mainframe.

It is clear that the curvature shown in Takayanagi's Fig. 3A (before compression) has the same characteristics as the curvature of the main frame shown in the Applicant's disclosed conventional art. That is, as in the conventional art, a curvature at the end of the main frame of Takayanagi is much greater than a curvature of the other shown portions of the main frame of Takayanagi. Therefore, either a constant ratio or curvature or a curvature satisfying $\Delta R / R = 0.95 \sim 1.05$ is not met by Takayanagi.

Particularly, Takayanagi fails to teach or suggest a combination of elements in a supporting frame structure for a tension-type shadow mask of a color CRT, wherein a curvature of each one of said portions for supporting satisfies the equation $\Delta R / R = 0.95 \sim 1.05$ before the first and second main frames are compressed for supporting the shadow mask, where R is a radius of curvature obtained by connecting a center and both ends of each one of said portions for supporting, as recited in independent claim 1.

Further, Takayanagi fails to teach or suggest a combination of elements in a frame for supporting a tension-type shadow mask of a color CRT, wherein

the portions for supporting in the first frames have a single radius of curvature before the first frames are compressed, for applying an elastic force to the shadow mask and supporting the shadow mask, as recited in independent claim 4.

Claim 8

While not conceding the appropriateness of the Examiner's rejection, but merely to advance prosecution of the instant application, Applicant respectfully submits that independent claim 8 has been amended to recite a combination of elements in a frame for supporting a tension-type shadow mask of a color CRT, wherein each of the portions for supporting in the first frames has inflection points where the curvature of the portions for supporting is increased at peripheral portions thereof after the first frames are compressed, for supporting the shadow mask and increasing a friction force of a damper wire at the periphery of the shadow mask.

Applicant respectfully submits that this combination of elements as set forth in independent claim 8 is not disclosed or made obvious by the prior art of record, including Takayanagi.

Particularly, Takayanagi provides that at places where a gap c develops between the damper wire 43 and aperture grill 41, the force N pressing the aperture grill 41 in an axial direction is weakened or lost. Hence, frictional

forces acting between the thin tapes and damper wires 43 will not become uniform, and not be able to give an anti-vibration effect uniformly over the whole surface of the aperture grill 41 (Takayanagi, Col.3, lines 8-15).

As a solution, Takayanagi provides that because the aperture grill 21 is welded to the upper and lower frames 25 and 26, while the latter are subject to elastic deformations, the surfaces for welding 25a and 26a take the same form with that of a part of a columnar wall surface with a radius of R as described earlier, and forces N acting on the thin tapes constituting the aperture grill 21 are uniform. Accordingly, frictional forces acting between thin tapes and the damper wires 23 are uniform, and the aperture grill supporting frame 22 can exert a uniformly acting anti-vibration effect on the whole surface of aperture grill 21 (Takayanagi, Col.6, lines 31-41). Takayanagi teaches a uniform curvature over the entire upper surfaces of the supporting portions of the main frames.

Clearly then, Takayanagi does not provide inflection points at a peripheral portion to increase contact (friction) at the peripheral portion, but rather provides a uniform surface to achieve a uniform anti-vibration effect on the whole surface. Accordingly, Takayanagi does not teach the above-recited features of independent claim 8, as amended.

Dependent Claims

Claims 3, 5-7, 9 and 10 depend either directly or indirectly from independent claims 1, 4 and 8, and therefore are patentable at least for the reasons stated with respect to claims 1, 4 and 8. Reconsideration and withdrawal of this art grounds of rejection is respectfully requested.

Claims 8 and 9

Claims 8 and 9 stand rejected under 35 U.S.C. 102(e) over Suganuma et al. (Suganuma). This rejection is respectfully traversed.

The Examiner has recited a portion of Suganuma (Col.3, lines 20-30), which teaches decreasing an amount of curvature of portions for supporting a color selection mechanism. Clearly, then Suganuma fails to teach a combination of elements in a frame for supporting a tension-type shadow mask of a color CRT, wherein each of the portions for supporting in the first frames has inflection points where the curvature of the portions for supporting is increased at peripheral portions thereof after the first frames are compressed, for supporting the shadow mask and increasing a friction force of a damper wire at the periphery of the shadow mask, as recited in independent claim 8 (as amended).

Claim 9 depends on claim 8, and therefore is patentable for at least the reasons stated with respect to independent claim 8. Reconsideration and withdrawal of this art grounds of rejection is respectfully requested.

Conclusion

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Percy L. Square, Registration No. 51,084, at (703) 205-8034, in the Washington, D.C. area.

Prompt and favorable consideration of this Amendment is respectfully requested.

Amendment filed June 9, 2004
Response to Final Office Action of March 9, 2004

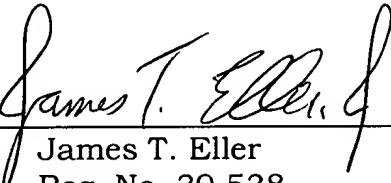
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If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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